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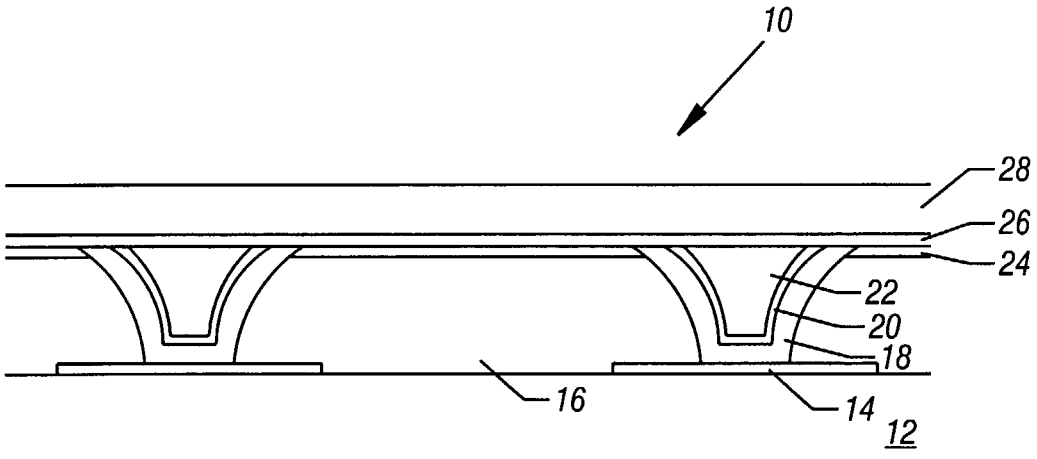
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(54) Title: PHASE CHANGE MATERIAL MEMORY DEVICE



(57) Abstract: A phase change material memory cell (10) may be formed with singulated, cup-shaped phase change material (18). The interior of the cup-shaped phase change material (18) may be filled with a thermal insulating material (22). As a result, heat losses upwardly through the phase change material (18) may be reduced and adhesion problems between the phase change material (18) and the rest of the device (10) may likewise be reduced in some embodiments. In addition, a barrier layer (20) may be provided between the upper electrode (28) and the remainder of the device (10) that may reduce species incorporation from the top electrode (28) into the phase change material (18), in some embodiments. Chemical mechanical planarization may be utilized to define the phase change material (18) reducing the effects of phase change material dry etching in some embodiments.

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